

Remarks

Claims 27-40 are pending in the application, with claims 27 and 34 being the independent claims. Claims 1-26 have been canceled without prejudice to or disclaimer of the subject matter therein. New claim 27 and 40 have been added. It is noted that only claims 1-17 were examined. Claims 1-26 were originally filed with the application. Claims 1-17 were on amended claim pages 18-23 which were amended in response to the International Preliminary Examination Report in the International Application, and claims 18-26 were included in the “non-amended” claim pages. In any event, all of claims 1-26 were canceled and claims 27-40 are presented.

Based on the present Amendment and the following Remarks, Applicants respectfully requests that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Objection to the Specification

The specification has been reviewed and amended to correct noted informalities.

Objection to the Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5).

In response to the objection in item 2, reference number “3” in the specification has been changed to “3a.”

In response to the objection in item 3, reference number “14a” in Fig. 7 has been changed to reference number “8a.”

In response to the objection in item 4, reference number “18a” has been changed to reference number “18.”

Rejections under 35 U.S.C. § 112

Claims 1-17 were rejected under 35 U.S.C. §112. It is respectfully submitted that claims 27-40 comply with Section 112.

Rejections under 35 U.S.C. § 102

Claims 1, 4, 6-7, 9 and 13 were rejected under 35 U.S.C. §102 as being anticipated by U.S. Patent No. 4,347,219 to Noritake et al. ("Noritake"). Claims 1, 4, 6-7, 9 and 13 have been canceled.

New independent claim 27 is a combination of claims 1, 3 and 8, and new independent claim 34 is a combination of claims 9, 12 and 16.

Rejections under 35 U.S.C. § 103

Claim 2 was rejected under 35 U.S.C. §103 as being unpatentable over Noritake in view of U.S. Patent No. 4,413,392 to Otani et al. Claim 2 has been canceled.

Claims 3 and 12 were rejected under 35 U.S.C. §103 as being unpatentable over Noritake in view of JP 09-242533 ("JP") or GB 1,473,219 ("GB"). Although claims 3 and 12 have been canceled, the citation of JP and GB as teaching the features of claims 3 and 12 is respectfully requested.

Claims 8 and 16-17 were rejected under 35 U.S.C. §103 as being unpatentable over Noritake in view of U.S. Patent No. 5,413,766 to Dattge et al. ("Dattge"). Claims 8 and 16 have been incorporated in to the new independent claims, but canceled. Claim 17 has been canceled.

Claims 10 and 11 were rejected under 35 U.S.C. §103 as being unpatentable over Noritake in view of DE 3638050. Claims 10 and 11 have been canceled.

It is respectfully submitted that independent claims 27 and 34 distinguish over the cited prior art.

Noritake relates to a catalytic converter with a casing formed by a tube section in which a ceramic monolith is held radially by a wire-mesh mat, as well as to the production of this catalytic converter. The tube section has two longitudinal cylindrical sections with different inside cross-sectional surfaces, wherein the radially expanded area is relatively short and forms the tube section end counter to the exhaust gas flow direction. A wire-mesh ring 10 that is held in place by a holding element is positioned on the front end of the monolith and holds the monolith in place in its axial position. Noritake discloses that the following problems occur with casings having the same inside cross-sectional surface over the complete length: When inserting a monolith packet into a tube section, in particular the front end, meaning the wire-mesh mate end counter to the insertion direction is compressed more while the surface pressure that acts upon the monolith increases and the chances of the monolith breaking also increases. Another disadvantage mentioned is that as a result of vibrations, the end region of the mat that is more compacted expands in axial direction and in the process comes in pressure contact with the wire-mesh ring and displaces this ring in axial direction. Thus, an undesirable play is created in the end region of the monolith.

The solution proposed for the aforementioned problems in Noritake is to expand at least the frontal section of the tube section in radial direction, so that the wire-mesh mat is relieved there and the mat can expand freely in radial direction (column 5, lines 15 to 29). Thus, a reduction of the holding force exerted by the mat onto the monolith is taken into account for circumventing the aforementioned disadvantages.

In contrast, it is the primary goal of the present invention to increase the holding force exerted onto a monolith. This is achieved in that several longitudinal sections of the casing, following successively in insertion direction, are arranged with decreasing inside cross sectional diameters.

The claims further includes mineral fiber mats, in particular swelling mats, which ensure a radial as well as axial fixation of the monolith inside the casing. Additional fixation mechanisms that fit against both ends of a monolith are not required, so that the above-described problem of

Noritake does not occur. It must also be considered that wire-mesh mats have different elastic characteristics and behave differently when being pressed into a tube section than mineral-fiber mats.

While it is the object of the present invention to increase the holding force exerted onto the monolith through decreasing the gap, high forces are to be avoided (see lines 70 to 76 on page 1) for the catalytic converter disclosed in the GB. This is to be achieved with a cone-shaped casing that is tapered in flow direction, into which a cylinder-shaped monolith is inserted, with an elastic mat that also has a conical outside surface disposed between monolith and casing. The exhaust gas pressure should push and wedge the monolith into the cone-shaped casing. Of course, this can work only if the elastic mass is compressed only slightly in radial direction such that an axial movement of the monolith is possible.

JP also discloses a catalytic converter with a casing that is continuously tapered in flow direction. A mat disposed between a monolith and the casing is pressed by a flange-type part (17) in axial direction toward the rear casing end.

For the catalytic converter disclosed in the GB reference as well as the one disclosed in the JP reference, the holding force of the mat is thus generated by an axial force that acts either upon the monolith or the mat. This would not be possible with a graduated casing as defined according to our invention. Rather, it absolutely requires a casing that is continuously tapered toward the back end in flow direction. In any event, GB and JP would not be combined as suggested by the rejection.

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All of the stated grounds of objections and rejections have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is hereby invited to telephone the undersigned at the number provided.

A Notice of Allowance with claims 27-40 is respectfully requested.

Respectfully submitted,

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